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Influence of Ischemic Pre- and Post-Conditioning on Cardiac Expression of Calcium-Sensing Receptor

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Abstract

© 2016, Springer Science+Business Media New York.Ischemic heart disease is a common cause of patients' death worldwide. Recently, cardiac pre- and post-conditioning (IPC, IPoC) were indentified to reduce infarct size. Nevertheless, not only infarct size but also post-infarct remodelling is critical for the long-term enhancing effect. Calcium-sensing receptors (CaSRs) signalling was shown to be involved in IPC and IPoC in the heart. This study aims to clarify CaSRs expression after ischemia-reperfusion injury (I/R), IPC and IPoC. Experiments were performed on adult Wistar rats with left anterior descending coronary artery (LAD) occlusion. Troponin I (TnI) levels were measured in plasma of all animals to quantify the infarct size. Sham-operated animals, rats with I/R, IPC, and IPoC were compared. Left and right ventricular tissue samples from these groups were collected for qRT-PCR analysis. CaSR expression was enhanced in rats with I/R and IPC. Its increase after IPoC was not pronounced. In contrast, left ventricles (LV) showed decreased CaSR expression in rat hearts after I/R, IPC, and IPoC. Data suggest differences in CaSR regulation between LV and RV. Enhanced CaSR expression in RV was observed in tissue with small infarct size.

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Keywords

Calcium-sensing receptor, Ischemia-reperfusion injury, Post-conditioning, Pre-conditioning

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